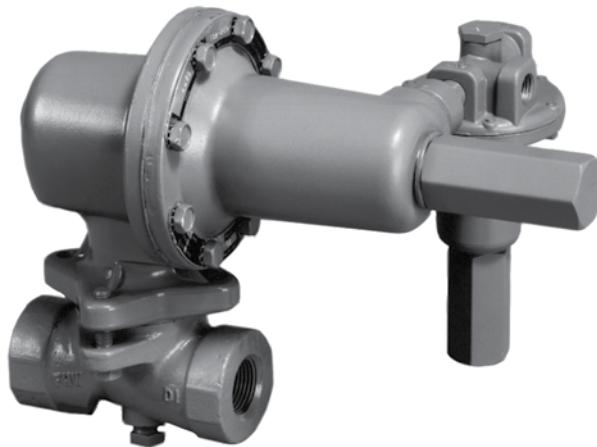
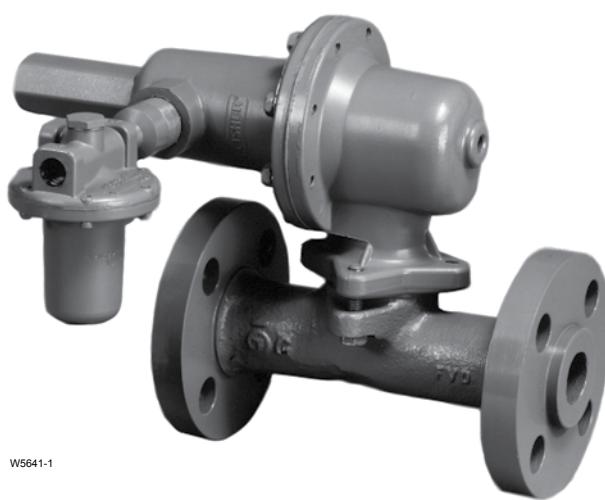


Type 627F Pilot-Operated Pressure Reducing Regulator



W5607-1



W5641-1

Figure 1. Type 627F Pressure Reducing Regulators

Introduction

The Type 627F pilot-operated (Type 6351F pilot) pressure reducing regulator (Figure 1) provides superior performance when used in pressure-factor measurement (fixed-factor billing) applications. The Type 627F includes a factory-installed Type 6351F pilot and has external registration that requires a downstream control line.

Features

- Accurate for Pressure-Factor Measurement Applications**—Pilot action controls pressure to within ± 1 percent of the absolute outlet pressure (psia) setting at full valve disk travel, resulting in higher capacity than could be obtained without a pilot. This capability results in low-pressure variations over broad flow ranges and inlet pressure ranges.
- Easy to Maintain**—Trim parts can be replaced without removing the regulator body from the
- Installation Adaptability**—The diaphragm case and/or regulator body can be rotated in any of four positions to allow regulator installation in locations with limited space. The regulator may be installed in any position without affecting operation as long as the spring case vent is protected from the elements.
- Tamper-Resistant**—An adjusting screw locknut and protective cap (Figure 2) is standard on all Type 6351F pilots to discourage tampering with the pressure setting.
- Wide Range of Flow Capabilities**—A selection of body and orifice sizes is available to satisfy various flow requirements.
- Tight Shutoff Capability**—A flat-faced disk of Nitrile (NBR) provides excellent shutoff capability.

pipeline. A two-bolt connection between the body and diaphragm casing simplifies disassembly for maintenance.

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Specifications

Body Sizes and End Connection Styles

Ductile iron: 3/4, 1, or 2 NPT

Steel: 3/4, 1, or 2 NPT;

NPS 1 or 2 / DN 25 or 50, CL150 RF,
CL300 RF, CL600 RF, PN 16/25/40 RF

Maximum Inlet and Differential Pressures⁽¹⁾

See Table 2

Minimum Pressure Differential

20 psid / 1.4 bar d

Outlet Pressure Ranges⁽¹⁾

5 to 100 psig / 0.34 to 6.9 bar

See Table 1

Maximum Emergency Outlet Pressure⁽¹⁾

250 psig / 17.2 bar for all Type 627F actuators
and Type 6351F pilot components.

Outlet Pressure Accuracy

±1% of absolute pressure setting⁽¹⁾ (psia or bar
absolute) when inlet pressure is held within
allowable variations shown in Table 3; droop does
not exceed 1% of absolute pressure setting for
flow rates shown in Tables 6 through 8.

Flow Coefficients

See Table 4

IEC Sizing Coefficients

See Table 5

Typical Regulating Capacities

See Tables 6 through 8 and Capacity
Information section

Typical Performance Curve

See Figure 3

Construction Materials

Type 627F Main Regulator

Body: Ductile iron (**standard**) or steel

Spring Case and Diaphragm Case: Die cast
Aluminum (**standard**), Ductile iron, or Steel

Orifice: Aluminum (**standard**) or Stainless steel

Construction Materials (continued)

Disk Assembly: Aluminum (**standard**) or
Stainless steel holder with Nitrile (NBR) disk

O-Rings and Diaphragm: Nitrile (NBR)

Tension Spring: Plated steel

Type 6351F Pilot

Body: Stainless steel

Spring Case: Aluminum

Diaphragm: Nylon fabric coated with Nitrile (NBR)

Inner Valve Plug: Stainless steel/Nitrile (NBR) or
Stainless steel/Fluorocarbon (FKM)

Stem: Stainless steel

Control Spring: Zinc-plated steel

Valve Spring: Stainless steel

Pusher Post: Aluminum or Stainless steel

**Diaphragm Plate, Lower Spring Guide, and
Adjusting Screw:** Zinc-plated steel

Temperature Capabilities⁽¹⁾

-20 to 180°F / -29 to 82°C

Pressure Registration

External through 1/4 NPT (internal) control
line connection (see Figure 2)

Pilot Spring Case Vent Connection

1/4 NPT (internal) with removable screened
vent assembly

Pilot Connections

1/4 NPT (internal)

Approximate Weights

NPT body with Ductile Iron or Steel Casings:

10 pounds / 4.5 kg

NPT body with Aluminum Casings:

6.3 pounds / 2.9 kg

Flanged body with Steel Casings:

18 pounds / 8.2 kg

Flanged body with Ductile Iron Casings:

14 pounds / 6.4 kg

External Dimensions

See Figure 4

1. The pressure/temperature limits in this Bulletin and any applicable standard or code limitation should not be exceeded.

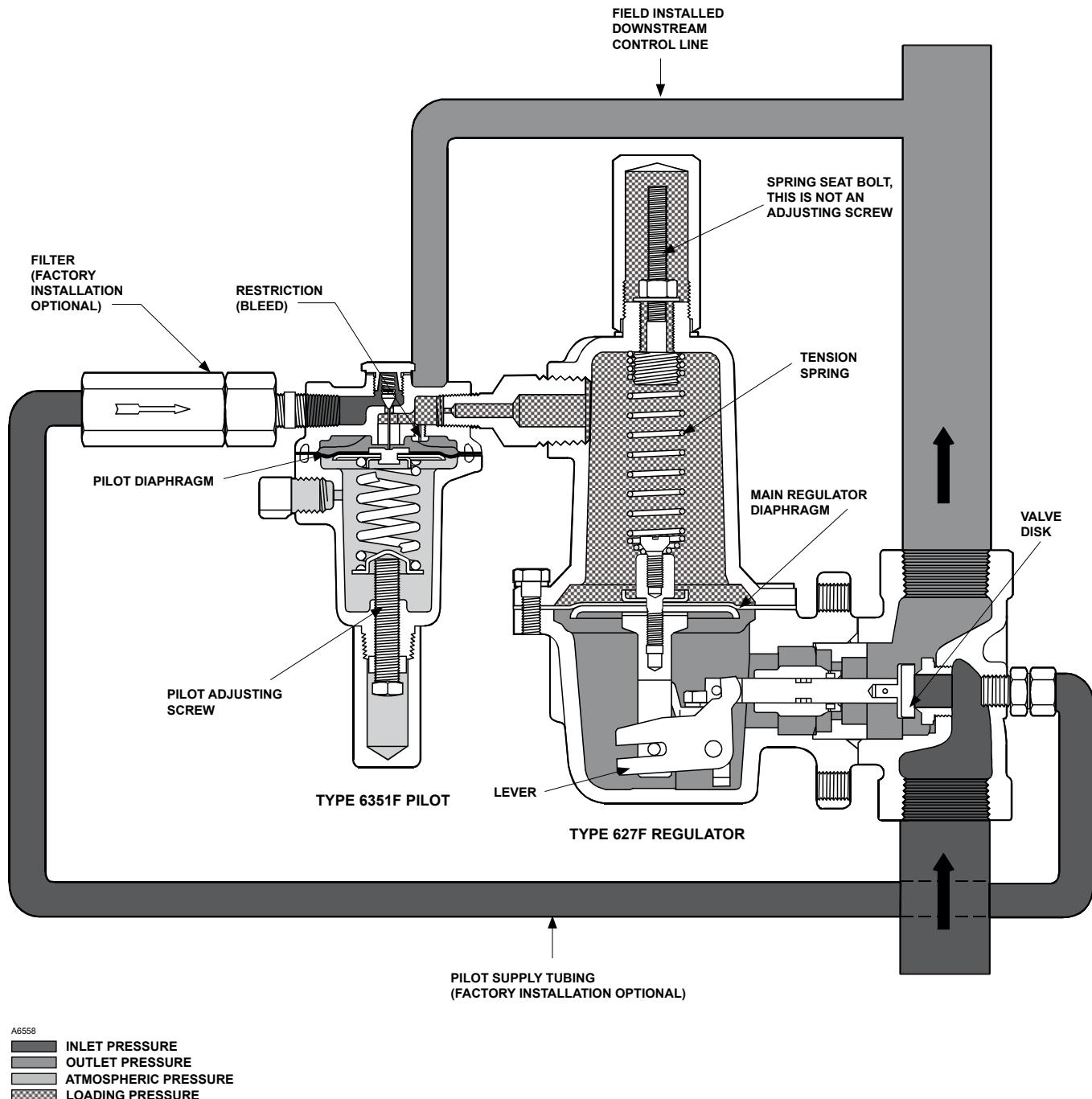


Figure 2. Type 627F Pilot-Operated Pressure Reducing Regulator Operational Schematic

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Table 1. Outlet Pressure Ranges

PILOT TYPE	OUTLET PRESSURE RANGE		PILOT CONTROL SPRING INFORMATION					
	psig	bar	Part Number	Color Code	Wire Diameter		Free Length	
					Inches	mm	Inches	mm
6351F	5 to 35 35 to 100	0.34 to 2.4 2.4 to 6.9	1B788327022 1K748527022	Unpainted Red	0.142 0.192	3.61 4.88	2.13 2.19	54.1 55.6

Table 2. Maximum Allowable Inlet Pressures and Pressure Differential

ORIFICE SIZE		MAXIMUM INLET PRESSURE		MAXIMUM PRESSURE DIFFERENTIAL	
Inches	mm	psig	bar	psi	bar
3/8 x 1/8	9.5 x 3.2	250	17.2	250	17.2
3/8 x 1/4	9.5 x 6.4	250	17.2	250	17.2
3/8	9.5	250	17.2	250	17.2
1/2	13	125	8.6	125	8.6

Table 3. Additional Specifications

ORIFICE SIZE		ALLOWABLE INLET PRESSURE RANGE FOR MAINTAINING OUTLET PRESSURE WITHIN $\pm 1\%$ OF THE ABSOLUTE OUTLET PRESSURE SETTING ⁽¹⁾									
		5 psig / 0.34 bar		30 psig / 2.1 bar		40 psig / 2.8 bar		60 psig / 4.1 bar		100 psig / 6.9 bar	
Inches	mm	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar
3/8 x 1/8	9.5 x 3.2	30 to 250	2.1 to 17.2	55 to 250	3.8 to 17.2	65 to 250	4.5 to 17.2	85 to 250	5.9 to 17.2	125 to 250	8.6 to 17.2
3/8 x 1/4	9.5 x 6.4	30 to 250	2.1 to 17.2	55 to 250	3.8 to 17.2	65 to 250	4.5 to 17.2	85 to 250	5.9 to 17.2	125 to 250	8.6 to 17.2
3/8	9.5	30 to 250	2.1 to 17.2	55 to 250	3.8 to 17.2	65 to 250	4.5 to 17.2	85 to 250	5.9 to 17.2	125 to 250	8.6 to 17.2
1/2	13	25 to 125	1.7 to 8.6	50 to 125	3.4 to 8.6	60 to 125	4.1 to 8.6	80 to 125	5.5 to 8.6	120 to 125	8.3 to 8.6

1. For best performance, outlet pressure setting should be made using an inlet pressure that is midway between the highest and lowest expected inlet pressure.

Table 4. Flow Coefficients

ORIFICE SIZE		3/4 NPT BODY			NPS 1 / DN 25 BODY			NPS 2 / DN 50 BODY		
		Wide-Open	Wide-Open	C ₁	Wide-Open	Wide-Open	C ₁	Wide-Open	Wide-Open	C ₁
Inches	mm	C _g	C _v		C _g	C _v		C _g	C _v	
3/8 x 1/8	9.5 x 3.2	12.5	0.43	29.1	12.5	0.43	29.4	12.5	0.43	29.2
3/8 x 1/4	9.5 x 6.4	50	1.63	30.6	50	1.71	29.3	52	1.66	31.3
3/8	9.5	108	2.99	36.1	108	3.42	31.6	115	3.39	33.9
1/2	13	190	4.87	39.0	190	5.29	35.9	200	5.01	39.9

Table 5. IEC Sizing Coefficients

ORIFICE SIZE		X _T			F _D	F _L
Inches	mm	3/4 NPT body	NPS 1 / DN 25 body	NPS 2 / DN 50 body		
1/8	3.2	0.54	0.55	0.54	0.50	0.79
1/4	6.4	0.59	0.54	0.62		0.87
3/8	9.5	0.82	0.63	0.73		0.89
1/2	13	0.96	0.82	1.01		0.86

Principle Operation

The superior performance of a Type 627F regulator is due to the amplifying effect of the pilot and the two-path control system (Figure 2). Changes in outlet pressure act quickly on the main regulator diaphragm which repositions the valve disk to provide fast response to system changes. Simultaneously, the pilot amplifies system pressure changes to position the main regulator valve disk for precise pressure control.

Inlet pressure is used for the pilot supply pressure. If downstream flow increases, lowering the outlet pressure below the regulator setpoint, pressure on the pilot diaphragm and the lever side of the main regulator diaphragm decreases. The pilot opens to supply the required loading pressure increase. The increased loading pressure from the pilot overcomes the main regulator spring force, and the main regulator valve disk moves farther open to supply the required flow. When downstream pressure increases due to lowered demand, greater pressure is registered on the pilot diaphragm and the lever side of the main regulator diaphragm. The pilot closes, and the excess loading pressure bleeds off to downstream, through the pilot restriction. With the lower loading pressure, the spring can move the main regulator disk closer to the orifice.

Under no flow conditions, the excess loading pressure bleeds through the pilot restriction to the downstream system until the loading pressure and outlet pressure equalize. The main valve is closed by the spring and the bleed stops.

Installation

The Type 627F regulators may be installed in any position, as long as flow will be in the same direction as that indicated by the body arrow. These regulators should be installed so that their spring case vents are protected from anything that might clog them.

Emerson™ provides an instruction manual with every regulator shipped. Refer to this for complete installation, operation, and maintenance instructions. Included is a complete listing of individual parts and recommended spare parts.

Overpressure Protection

Overpressurizing any portion of a regulator or associated equipment may cause personal injury, leakage, or property damage due to bursting of pressure-containing parts or explosion of accumulated gas.

To avoid overpressure, provide appropriate pressure relieving or pressure limiting devices to ensure that none of the limits in the specifications section is exceeded. Regulator operation within ratings does not prevent the possibility of damage from external sources such as debris in the pipeline. Inspect the regulator for damage after any overpressure condition.

Refer to the relief sizing coefficients in the specifications table and the Capacity Information section to determine the required external relief valve capacity.

Capacity Information

Natural gas regulating capacities at selected inlet pressures and outlet pressure settings are given in Tables 6 through 8. Flows are in SCFH (60°F and 14.7 psia) of 0.6 specific gravity natural gas. To determine the equivalent capacities for other gases, multiply the table capacity by the following appropriate conversion factor: 0.775 for air, 0.789 for nitrogen, 0.625 for propane, or 0.548 for butane. For gases of other specific gravities, multiply the given capacity by 0.775, and divide by the square root of the appropriate specific gravity.

Then, if capacity is desired in normal cubic meters per hour (Nm³/h) at 0°C and 1.01325 bar, multiply SCFH by 0.0268.

To determine wide-open flow capacities for relief sizing use the following formula:

$$Q = \sqrt{\frac{520}{GT}} C_g P_1 \sin \left(\frac{3417}{C_1} \sqrt{\frac{\Delta P}{P_1}} \right) \text{DEG}$$

where,

$C_1 = C_g/C_v$ (see Specifications table)

C_g = Gas sizing coefficient (see Specifications table)

G = Gas specific gravity (air = 1.0)

P_1 = Valve inlet pressure, psia

ΔP = Pressure drop across valve, psi

Q = Gas flow rate, SCFH

T = Absolute temperature of gas at inlet, °Rankine

To obtain the published capacities, the inlet and outlet piping should be the same as the regulator size.

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Table 6. Flow Capacities in SCFH / Nm³/h of 0.6 Specific Gravity Natural Gas at 1% Droop in Absolute Outlet Pressure for 3/4 NPT (Downstream Control Line in Body Size Piping)

PILOT SPRING RANGE, PART NUMBER, AND COLOR CODE	OUTLET PRESSURE SETTING		INLET PRESSURE		3/4 NPT BODY SIZE							
					Orifice Diameter, Inches / mm							
	psig	bar	psig	bar	3/8 x 1/8 / 9.5 x 3.2	3/8 x 1/4 / 9.5 x 6.4	3/8 / 9.5	1/2 / 13				
5 to 35 psig / 0.34 to 2.4 bar 1B788327022 Silver	5 10 20 30	0.34 0.69 1.4 2.1	30	2.1	700	18.8	2840	76.1	5780	155	9730	261
			40	2.8	860	23.1	3500	93.8	7480	200	13,100	351
			50	3.5	1020	27.3	4140	111	8850	237	15,400	413
			60	4.1	1170	31.4	4780	128	10,200	273	15,500	415
			80	5.5	1490	39.9	6060	162	12,900	346	15,500	415
			100	6.9	1800	48.2	7340	197	15,000	415	15,500	415
			125	8.6	2200	59.0	8940	240	15,500	415	15,500	415
			150	10.3	2580	69.1	10,500	281	15,500	415	15,500	415
			200	13.8	3370	90.3	13,700	367	15,500	415	15,500	415
			250	17.2	4170	112	15,500	415	15,500	415	15,500	415
	40	2.8	30	2.1	690	18.5	2760	74.0	5480	147	8500	228
			40	2.8	860	23.1	3500	93.8	7480	200	13,100	351
35 to 100 psig / 2.4 to 6.9 bar 1K748527202 Red	50 60 80 100 125 150 200 250	0.69 1.4 2.1	50	3.5	1020	27.3	4140	111	8850	237	15,400	413
			60	4.1	1170	31.4	4780	128	10,200	273	17,800	477
			80	5.5	1490	39.9	6060	192	12,900	346	19,500	523
			100	6.9	1800	48.2	7340	197	15,700	421	19,500	523
			125	8.6	2200	59.0	8940	240	17,500	469	19,500	523
			150	10.3	2580	69.1	10,500	281	19,500	523	19,500	523
			200	13.8	3370	90.3	13,700	367	19,500	523	19,500	523
			250	17.2	4170	112	16,900	453	19,500	523	19,500	523
			30	3.5	930	24.9	3680	98.6	7090	190	11,000	295
			60	4.1	1140	30.6	4530	121	8880	238	14,800	397
	40	4.1	80	5.5	1490	39.9	6060	162	12,900	346	22,600	606
			100	6.9	1800	48.2	7340	197	15,700	421	24,000	634
	50	5.2	125	8.6	2200	59.0	8940	240	19,100	512	28,000	750
			150	10.3	2580	69.1	10,500	281	22,500	603	28,000	750
	60	6.9	200	13.8	3370	90.3	13,700	367	28,000	750	28,000	750
			250	17.2	4170	112	16,900	453	28,000	750	28,000	750
	75	8.6	60	4.1	1030	27.6	4070	109	7770	208	10,400	279
			80	5.5	1450	38.9	5790	155	11,400	306	19,000	509
	100	10.3	100	6.9	1790	48.0	7340	197	15,700	421	27,400	734
			125	8.6	2200	59.0	8940	240	19,100	512	33,300	892
	125	12.5	150	10.3	2580	69.1	10,400	279	20,000	536	33,300	892
			200	13.8	3370	90.3	13,500	362	20,000	536	33,300	892
	150	15.0	250	17.2	4170	112	16,900	453	20,000	536	33,300	892
			300	20.0	4170	112	16,900	453	20,000	536	33,300	892
	200	20.0	350	25.0	4170	112	16,900	453	20,000	536	33,300	892
			400	33.3	4170	112	16,900	453	20,000	536	33,300	892
	250	25.0	300	20.0	4170	112	16,900	453	20,000	536	33,300	892
			350	25.0	4170	112	16,900	453	20,000	536	33,300	892
	300	30.0	400	40.0	4170	112	16,900	453	20,000	536	33,300	892
			450	45.0	4170	112	16,900	453	20,000	536	33,300	892
	500	50.0	550	55.0	4170	112	16,900	453	20,000	536	33,300	892
			600	60.0	4170	112	16,900	453	20,000	536	33,300	892
	650	65.0	700	70.0	4170	112	16,900	453	20,000	536	33,300	892
			750	75.0	4170	112	16,900	453	20,000	536	33,300	892
	800	80.0	850	85.0	4170	112	16,900	453	20,000	536	33,300	892
			900	90.0	4170	112	16,900	453	20,000	536	33,300	892
	950	95.0	1000	100.0	4170	112	16,900	453	20,000	536	33,300	892
			1050	105.0	4170	112	16,900	453	20,000	536	33,300	892
	1100	110.0	1150	115.0	4170	112	16,900	453	20,000	536	33,300	892
			1200	120.0	4170	112	16,900	453	20,000	536	33,300	892
	1250	125.0	1300	130.0	4170	112	16,900	453	20,000	536	33,300	892
			1300	130.0	4170	112	16,900	453	20,000	536	33,300	892
	1350	135.0	1400	140.0	4170	112	16,900	453	20,000	536	33,300	892
			1400	140.0	4170	112	16,900	453	20,000	536	33,300	892
	1450	145.0	1500	150.0	4170	112	16,900	453	20,000	536	33,300	892
			1500	150.0	4170	112	16,900	453	20,000	536	33,300	892
	1550	155.0	1600	160.0	4170	112	16,900	453	20,000	536	33,300	892
			1600	160.0	4170	112	16,900	453	20,000	536	33,300	892
	1650	165.0	1700	170.0	4170	112	16,900	453	20,000	536	33,300	892
			1700	170.0	4170	112	16,900	453	20,000	536	33,300	892
	1750	175.0	1800	180.0	4170	112	16,900	453	20,000	536	33,300	892
			1800	180.0	4170	112	16,900	453	20,000	536	33,300	892
	1850	185.0	1900	190.0	4170	112	16,900	453	20,000	536	33,300	892
			1900	190.0	4170	112	16,900	453	20,000	536	33,300	892
	1950	195.0	2000	200.0	4170	112	16,900	453	20,000	536	33,300	892
			2000	200.0	4170	112	16,900	453	20,000	536	33,300	892
	2050	205.0	2100	210.0	4170	112	16,900	453	20,000	536	33,300	892
			2100	210.0	4170	112	16,900	453	20,000	536	33,300	892
	2150	215.0	2200	220.0	4170	112	16,900	453	20,000	536	33,300	892
			2200	220.0	4170	112	16,900	453	20,000	536	33,300	892
	2250	225.0	2300	230.0	4170	112	16,900	453	20,000	536	33,300	892
			2300	230.0	4170	112	16,900	453	20,000	536	33,300	892
	2350	235.0	2400	240.0	4170	112	16,900	453	20,000	536	33,300	892
			2400	240.0	4170	112	16,900	453	20,000	536	33,300	892
	2450	245.0	2500	250.0	4170	112	16,900	453	20,000	536	33,300	892
			2500	250.0	4170	112	16,900	453	20,000	536	33,300	892
	2550	255.0	2600	260.0	4170	112	16,900	453	20,000	536	33,300	892
			2600	260.0	4170	112	16,900	453	20,000	536	33,300	892

Table 6. Flow Capacities in SCFH / Nm³/h of 0.6 Specific Gravity Natural Gas at 1% Droop in Absolute Outlet Pressure for 3/4 NPT (Downstream Control Line in Body Size Piping) (continued)

PILOT SPRING RANGE, PART NUMBER, AND COLOR CODE	OUTLET PRESSURE SETTING		INLET PRESSURE		3/4 NPT BODY SIZE							
					Orifice Diameter, Inches / mm							
	psig	bar	psig	bar	3/8 x 1/8 / 9.5 x 3.2	3/8 x 1/4 / 9.5 x 6.4	3/8 / 9.5	1/2 / 13				
35 to 100 psig / 2.4 to 6.9 bar 1K748527202 Red	100	6.9	125	8.6	1660	44.5	6680	179	12,500	335	18,000	482
			150	10.3	2360	63.3	9320	250	17,900	480		
			200	13.8	3330	89.2	13,400	359	26,600	713		
			250	17.2	4170	112	16,900	453	36,200	970		

— Maximum operating inlet pressure is exceeded.

Table 7. Flow Capacities in SCFH / Nm³/h of 0.6 Specific Gravity Natural Gas at 1% Droop in Absolute Outlet Pressure for NPS 1 / DN 25 (Downstream Control Line in Body Size Piping)

PILOT SPRING RANGE, PART NUMBER, AND COLOR CODE	OUTLET PRESSURE SETTING		INLET PRESSURE		NPS 1 / DN 25 BODY SIZE							
					Orifice Diameter, Inches / mm							
	psig	bar	psig	bar	3/8 x 1/8 / 9.5 x 3.2	3/8 x 1/4 / 9.5 x 6.4	3/8 / 9.5	1/2 / 13				
5 to 35 psig / 0.34 to 2.4 bar 1B788327022 Silver	5	0.34	30	2.1	700	18.8	2840	76.1	6040	162	10,100	271
			40	2.8	860	23.1	3500	93.8	7480	200	13,100	351
			50	3.5	1020	27.3	4140	111	8850	237	15,400	413
			60	4.1	1170	31.4	4780	128	10,200	273	17,800	477
			80	5.5	1490	39.9	6060	162	12,900	346	18,500	496
			100	6.9	1800	48.2	7340	197	15,700	421	18,500	496
			125	8.6	2200	59.0	8940	240	18,500	496	18,500	496
			150	10.3	2580	69.1	10,500	281	18,500	496		
	10	6.9	200	13.8	3370	90.3	13,700	367	18,500	496		
			250	17.2	4170	112	16,900	453	18,500	496		
			30	2.1	690	18.5	2760	74.0	5840	157	8930	239
			40	2.8	860	23.1	3500	93.8	7480	200	13,100	351
	20	1.4	50	3.5	1020	27.3	4140	111	8850	237	15,400	413
			60	4.1	1170	31.4	4780	128	10,200	273	17,800	477
			80	5.5	1490	39.9	6060	162	12,900	346	22,600	606
			100	6.9	1800	48.2	7340	197	15,700	421	22,600	606
			125	8.6	2200	59.0	8940	240	19,100	512	22,600	606
			150	10.3	2580	69.1	10,500	281	22,500	603		
			200	13.8	3370	90.3	13,700	367	29,400	788		
			250	17.2	4170	112	16,900	453	33,300	892		
35 to 100 psig / 2.4 to 6.9 bar 1K748527202 Red	40	2.8	30	2.1	590	15.8	2310	61.9	4820	129	6400	172
			40	2.8	820	22.0	3250	87.1	6830	183	10,500	281
			50	3.5	1000	26.8	4030	108	8500	228	13,400	359
			60	4.1	1170	31.4	4780	128	10,200	273	17,800	477
			80	5.5	1490	39.9	6060	162	12,900	346	22,600	606
			100	6.9	1800	48.2	7340	197	15,700	421	27,400	734
			125	8.6	2200	59.0	8940	240	19,100	512	33,300	892
			150	10.3	2580	69.1	10,500	281	22,500	603		
			200	13.8	3370	90.3	13,700	367	29,400	788		
			250	17.2	4170	112	16,900	453	36,200	970		

— Maximum operating inlet pressure is exceeded.

- continued -

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Table 7. Flow Capacities in SCFH / Nm³/h of 0.6 Specific Gravity Natural Gas at 1% Droop in Absolute Outlet Pressure for NPS 1 / DN 25 (Downstream Control Line in Body Size Piping) (continued)

PILOT SPRING RANGE, PART NUMBER, AND COLOR CODE	OUTLET PRESSURE SETTING		INLET PRESSURE		NPS 1 / DN 25 BODY SIZE							
					Orifice Diameter, Inches / mm							
	psig	bar	psig	bar	3/8 x 1/8 / 9.5 x 3.2	3/8 x 1/4 / 9.5 x 6.4	3/8 / 9.5		1/2 / 13			
35 to 100 psig / 2.4 to 6.9 bar 1K748527202 Red	50	3.4	70	4.8	1130	30.3	4450	119	9300	249	11,200	300
			80	5.5	1370	36.7	5420	145	11,400	306	18,300	490
			100	6.9	1770	47.4	7060	189	14,900	399	24,400	654
			125	8.6	2200	59.0	8940	240	19,100	512	33,300	892
			150	10.3	2590	69.4	10,400	279	22,500	603		
			200	13.8	3370	90.3	13,500	362	29,400	788		
	60	4.1	250	17.2	4170	112	16,900	453	36,200	970		
			80	5.5	1220	82.7	4790	128	10,000	268	12,900	346
			100	6.9	1700	45.6	6730	180	14,200	381	22,900	614
			125	8.6	2170	58.2	8700	233	18,400	493	30,300	812
			150	10.3	2580	69.1	10,300	276	22,500	603		
			200	13.8	3370	90.3	13,500	362	29,400	788		
	75	5.2	250	17.2	4170	112	16,900	453	36,200	970		
			100	6.9	1490	39.9	5870	157	12,300	330	18,000	482
			125	8.6	2080	55.7	8250	221	16,900	453	28,100	753
			150	10.3	2550	68.3	10,200	273	20,300	544		
			200	13.8	3370	90.3	13,500	362	29,400	788		
			250	17.2	4170	112	16,900	453	36,200	970		
	100	6.9	125	8.6	1660	44.5	6680	179	13,900	373	19,400	520
			150	10.3	2360	63.3	9320	250	20,000	536		
			200	13.8	3330	89.2	13,400	359	28,300	758		
			250	17.2	4170	112	16,900	453	36,200	970		

——— Maximum operating inlet pressure is exceeded.

Table 8. Flow Capacities in SCFH / Nm³/h of 0.6 Specific Gravity Natural Gas at 1% Droop in Absolute Outlet Pressure for NPS 2 / DN 50 (Downstream Control Line in Body Size Piping)

PILOT SPRING RANGE, PART NUMBER, AND COLOR CODE	OUTLET PRESSURE SETTING		INLET PRESSURE		NPS 2 / DN 50 BODY SIZE							
					Orifice Diameter, Inches / mm							
	psig	bar	psig	bar	3/8 x 1/8 / 9.5 x 3.2	3/8 x 1/4 / 9.5 x 6.4	3/8 / 9.5		1/2 / 13			
5 to 35 psig / 0.34 to 2.4 bar 1B788327022 Silver	5	0.34	30	2.1	700	18.8	2840	76.1	6150	165	10,100	271
			40	2.8	860	23.1	3500	93.8	7760	208	13,800	370
			50	3.5	1020	27.3	4140	111	9180	246	16,300	437
			60	4.1	1170	31.4	4780	128	10,600	284	18,800	504
			80	5.5	1490	39.9	6060	162	13,400	359	23,800	638
			100	6.9	1800	48.2	7340	197	16,300	437	28,900	775
	10	0.69	125	8.6	2200	59.0	8940	240	19,800	531	30,000	804
			150	10.3	2580	69.1	10,500	281	23,400	627		
			200	13.8	3370	90.3	13,700	367	30,000	804		
			250	17.2	4170	112	16,900	453	30,000	804		
			30	2.1	690	18.5	2760	74.0	5870	157	9500	255
			40	2.8	860	23.1	3500	93.8	7760	208	13,800	370
	20	1.4	50	3.5	1020	27.3	4140	111	9130	246	16,300	437
			60	4.1	1170	31.4	4780	128	10,600	284	18,800	504
			80	5.5	1490	39.9	6060	162	13,400	359	23,800	638
			100	6.9	1800	48.2	7340	197	16,300	437	28,900	775
			125	8.6	2200	59.0	8940	240	19,800	531	35,100	941
			150	10.3	2580	69.1	10,500	281	23,400	627		
			200	13.8	3370	90.3	13,700	367	30,500	817		
			250	17.2	4170	112	16,900	453	37,600	1008		

——— Maximum operating inlet pressure is exceeded.

- continued -

Table 8. Flow Capacities in SCFH / Nm³/h of 0.6 Specific Gravity Natural Gas at 1% Droop in Absolute Outlet Pressure for NPS 2 / DN 50 (Downstream Control Line in Body Size Piping) (continued)

PILOT SPRING RANGE, PART NUMBER, AND COLOR CODE	OUTLET PRESSURE SETTING		INLET PRESSURE		NPS 2 / DN 50 BODY SIZE							
			Orifice Diameter, Inches / mm									
	psig	bar	psig	bar	3/8 x 1/8 / 9.5 x 3.2	3/8 x 1/4 / 9.5 x 6.4	3/8 / 9.5	1/2 / 13				
5 to 35 psig / 0.34 to 2.4 bar 1B788327022 Silver	30	2.1	50	3.5	930	24.9	3680	98.6	7670	206	12,100	324
			60	4.1	1140	30.6	4530	121	9540	256	15,300	410
			80	5.5	1490	39.9	6060	162	13,500	362	23,800	638
			100	6.9	1800	48.2	7340	197	16,300	437	28,900	775
			125	8.6	2200	59.0	8940	240	19,800	531	35,100	941
	40	2.8	150	10.3	2580	69.1	10,500	281	23,400	627		
			200	13.8	3370	90.3	13,700	367	30,500	817		
			250	17.2	4170	112	16,900	453	37,600	1008		
			60	4.1	1030	27.6	4070	109	8440	226	12,000	322
			80	5.5	1450	38.9	5790	155	12,300	330	19,700	528
35 to 100 psig / 2.4 to 6.9 bar 1K748527202 Red	50	3.4	100	6.9	1790	48.0	7340	197	16,300	437	28,900	775
			125	8.6	2200	59.0	8940	240	19,800	531	35,100	941
			150	10.3	2580	69.1	10,400	279	23,400	627		
			200	13.8	3370	90.3	13,500	362	30,500	817		
			250	17.2	4170	12	16,900	453	37,600	1008		
	60	4.1	70	4.8	1130	30.3	4450	119	8460	227	14,000	375
			80	5.5	1370	36.7	5420	145	11,300	303	17,900	480
			100	6.9	1770	47.4	7060	189	15,000	402	24,200	649
			125	8.6	2200	59.0	8940	240	19,800	531	35,100	941
			150	10.3	2590	69.4	10,400	279	23,400	627		
			200	13.8	3370	90.3	13,500	362	30,500	817		
			250	17.2	4170	112	16,900	453	37,600	1008		
			80	5.5	1220	32.7	4790	128	9860	264	14,000	375
			100	6.9	1700	45.6	6730	180	14,100	378	22,400	600
			125	8.6	2170	58.2	8700	233	18,500	496	30,000	804
			150	10.3	2580	69.1	10,300	276	23,400	627		
			200	13.8	3370	90.3	13,500	362	30,500	817		
			250	17.2	4170	112	16,900	453	37,600	1008		
			100	6.9	1490	39.9	5870	157	12,100	324	18,800	504
			125	8.6	2080	55.7	8250	221	17,300	464	27,600	740
			150	10.3	2550	68.3	10,200	273	21,700	582		
			200	13.8	3370	90.3	13,500	362	30,500	817		
			250	17.2	4170	112	16,900	453	37,600	1008		
			125	8.6	1660	44.5	6680	179	13,700	367	21,200	568
			150	10.3	2360	63.3	9320	250	19,400	520		
			200	13.8	3330	89.2	13,400	359	28,500	764		
			250	17.2	4170	112	16,900	453	37,600	1008		

— Maximum operating inlet pressure is exceeded.

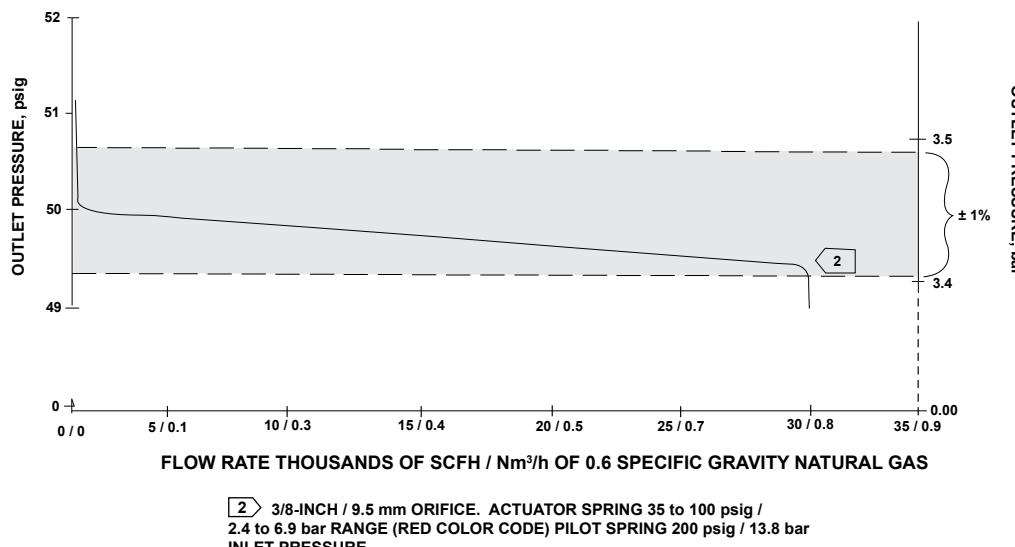


Figure 3. Typical Performance Curve for 3/4 NPT Type 627F Regulator

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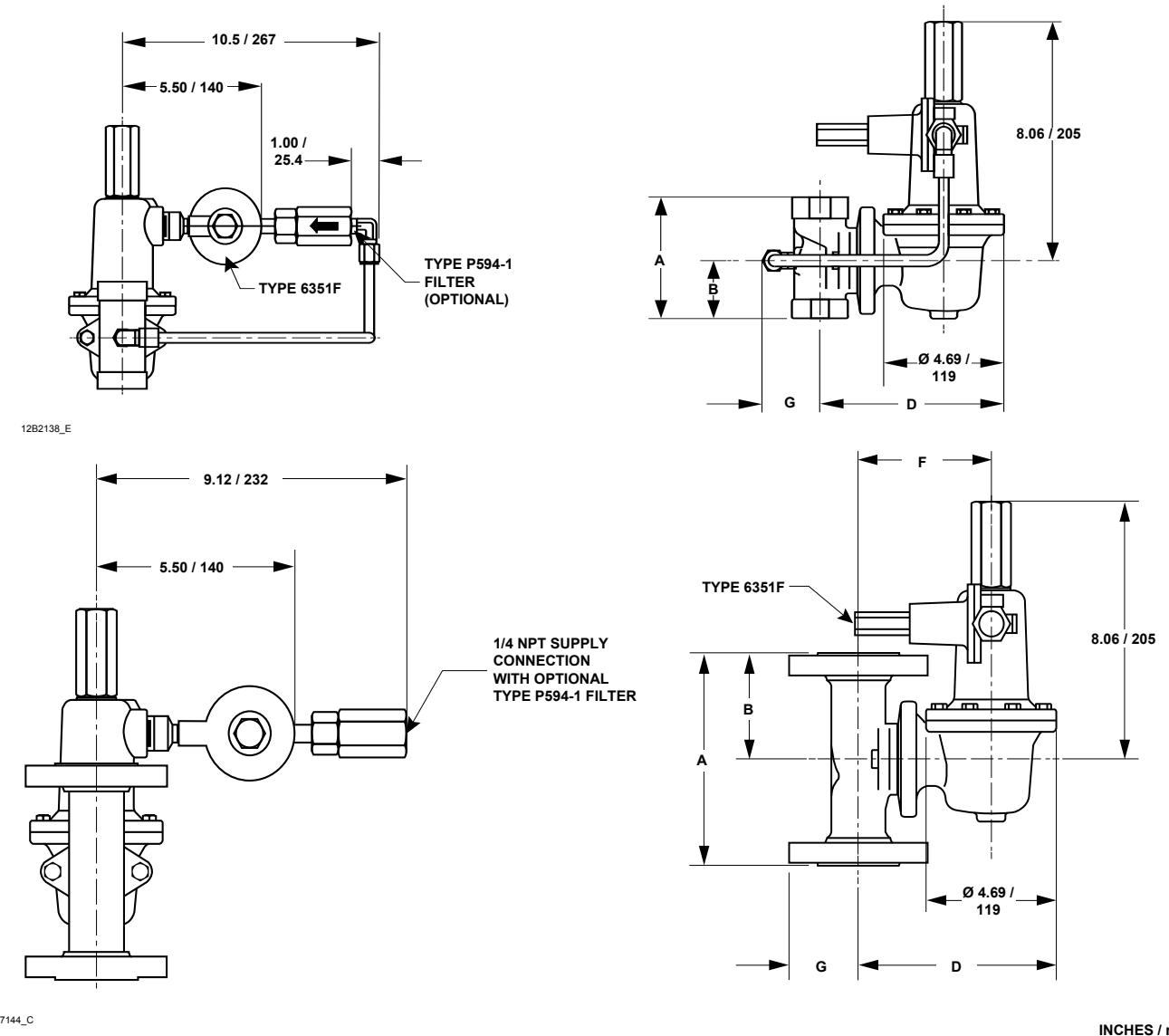


Figure 4. Dimensions

Table 9. Dimensions

BODY SIZE		END CONNECTION STYLE	DIMENSIONS, Inches / mm										
Inches	DN		A		B		D		F		G		
3/4	----	NPT	4.06	103	1.94	49	6.75	171	----	----	2.00	51	
1	----	NPT	4.06	103	1.94	49	6.75	171	----	----	2.00	51	
1	25	CL150 RF	7.25	184	3.62	92	6.75	171	4.38	111	2.12	54	
		CL300 RF	7.75	197	3.88	99					2.44	62	
		CL600 RF	8.25	210	4.12	105					2.44	62	
		PN 16/25/40	7.80	198	3.90	99					2.31	59	
2	50	NPT	5.00	127	2.50	64	7.12	181	4.75	121	2.62	67	
		CL150 RF	10.00	254	5.00	127					3.00	76	
		CL300 RF	10.50	267	5.25	133					3.25	83	
		CL600 RF	11.25	286	5.62	143					3.25	83	
		PN 16/25/40	10.31	262	5.16	131					3.25	83	

Ordering Information

Application

When ordering, specify:

1. Type of regulator
2. Body size
3. Body material and trim material
4. Orifice size in inches / mm
5. Control spring range in psig / bar

Construction

Refer to the specifications and to each referenced table; specify the desired selection whenever there is a choice to be made. The standard assembly position is shown in Figure 1, but an alternate assembly position may be factory-ordered or can be accomplished in the field by unbolting the body or spring case using the instructions in the appropriate section of the instruction manual. For installation dimensions, refer to Figure 4.

Ordering Guide

Body Material, Body Size, and End Connection Style

(Select One)

Ductile Iron

- 3/4 NPT***
- 1 NPT***
- 2 NPT***

WCC Steel

- 3/4 NPT***
- 1 NPT***
- NPS 1 / DN 25, CL150 RF**
- NPS 1 / DN 25, CL300 RF**
- NPS 1 / DN 25, CL600 RF**
- NPS 1 / DN 25, PN 16/25/40**
- 2 NPT***
- NPS 2 / DN 50, CL150 RF**
- NPS 2 / DN 50, CL300 RF**
- NPS 2 / DN 50, CL600 RF**
- NPS 2 / DN 50, PN 16/25/40**

Spring Case and Diaphragm Casing Material

(Select One)

- Aluminum***
- Ductile iron***
- WCC steel***

Trim Material (Select One)

- Aluminum***
- Stainless steel***

Orifice Size (Select One)

- 3/8 x 1/8-inch / 9.5 x 3.2 mm**
- 3/8 x 1/4-inch / 9.5 x 6.4 mm**
- 3/8-inch / 9.5 mm***
- 1/2-inch / 13 mm***

Outlet Pressure Range (Select One)

- 5 to 35 psig / 0.34 to 2.4 bar, Unpainted***
- 35 to 100 psig / 2.4 to 6.9 bar, Red***

Pilot Supply Filter (Optional)

- Type P594-1

Pilot Supply Steel Tubing (Optional)

- With Type P594-1 Filter
- Without Filter

Replacement Parts Kit (Optional)

- Yes, send one replacement parts kit to match this order.

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Regulators Quick Order Guide	
***	Readily Available for Shipment
**	Allow Additional Time for Shipment
*	Special Order, Constructed from Non-Stocked Parts. Consult Your local Sales Office for Availability.
Availability of the product being ordered is determined by the component with the longest shipping time for the requested construction.	

Specification Worksheet

Application:

Specific Use _____

Line Size _____

Gas Type and Specific Gravity _____

Gas Temperature _____

Does the Application Require Overpressure Protection?

 Yes No If yes, which is preferred: Relief Valve Monitor Regulator Shutoff Device

Is overpressure protection equipment selection assistance desired? _____

Pressure:Maximum Inlet Pressure ($P_{1\max}$) _____Minimum Inlet Pressure ($P_{1\min}$) _____Downstream Pressure Setting(s) (P_2) _____Maximum Flow (Q_{\max}) _____**Performance Required:**

Accuracy Requirements? _____

Need for Extremely Fast Response? _____

Other Requirements: _____**Industrial Regulators****Emerson Process Management
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